CLAIMS

1. A gerotor mechanism for a screw hydraulic machine, said mechanism comprising

a stator having inner helical teeth made of a elastoplastic material, e.g. of rubber, and

a rotor having outer helical teeth whose number by one tooth is less than that of the stator,

leads of screw lines in the stator and the rotor being proportional to numbers of their teeth,

the rotor axis being shifted with respect to the stator axis by the eccentricity value being equal to half of the teeth radial height; characterized in that

profiles of the rotor and/or the stator are outlined in the end cross section thereof in the form of the envelop of the initial contour of a rack-type tool, which contour is formed by conjugation of circle arcs when said initial contour of the rack-type tool is run without sliding along corresponding tool circles,

the radii of the circle arcs of the initial contour being calculated according to the following expressions:

$r_i = K[(\pi^2 r_{w1}^2/4Ez_1^2)+E]/(K+1)$ or $r_i = K[(\pi^2 r_{w2}^2/4Ez_2^2)+E]/(K+1)$,

$r_c = r_i/K$,

where

r_i is the initial radius of the rack-type tool profile,

$K = (0.5...2)$ is the initial contour shape coefficient,

r_{w1}, r_{w2} are radii of the tool circles of the rotor and the stator, respectively;

E is eccentricity of meshing,

z_1, z_2 are numbers of teeth of the stator and the rotor, respectively;

r_c is the conjugated radius of the rack-type tool profile.

2. The gerotor mechanism for a screw hydraulic machine according to claim 1, **characterized in that** the profile of a half of each of the teeth in end cross section of the rotor and/or the stator is defined as the envelope of the rack-type tool initial contour formed by the curtailed cycloid equidistance when the rack-type tool initial contour is run without sliding along the corresponding tool circle.